KS Life Cycle

Knowledge Engineering Course

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Academic Year 2010-2011

What is a KBS?

- A KBS is a software system,
- where knowledge is represented
- and used to solve problems

The life cycle is similar to that of traditional SW systems, with some peculiarities

The KBS team

In the development of a KBS, people with different roles:

- The **knowledge engineer** is responsible for the project, manages the project team, collects, analyzes and formalizes the needed knowledge, produces the conceptual model
- The **expert** provides the needed knowledge
- The **customer** (either the management or a client) provides the resources needed for the project and evaluates the achievement of the goals stated at the beginning
- The **user** will use the system, provides specifications about the use of the system, and participates to the knowledge acquisition process and the tests
- The **knowledge programmer** implements the system, starting from the conceptual model

Life cycle for a KBS

The typical life cycle consists of 5 phases:

- Plausibility evaluation
- Demonstrative prototype
- Final prototype
- Implementation and installation of the final system
- Maintenance and extension

Plausibility evaluation

Goals:

- Application area analysis, identification of an appropriate domain, selection of the problem to be faced
- Identification of the main technical and functional specifications and check of the plausibility of the application
- First technical decisions, first project schema. first approximate planning

Output: feasibility report

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Demonstrative prototype

Goals:

- Identification of the problem in its complexity, and check of the choices done at step 1
- Collection of reactions, criticisms, suggestions from the final users, to refine the specifications
- Involvement and commitment of the customer, experts and users

Output: demonstrative prototype

Final prototype

Goals:

- Implementation of the complete prototype, running, satisfying the specifications, possibly in a partial way since:
  - it is installed in a laboratory environment, not in the final one
  - it has been tested only with realistic examples, defined ad hoc
  - it requires further engineering, and may be still included in the development environment

Output: complete prototype, new version of the plausibility report, including validation and evaluation criteria, project planning, and technical specifications

Implementation and installation of the final system

Goals:

- Implementation of the final system, with the defined functionalities, running in the final environment
- Detailed analysis of the final environment
- Further development of the prototype, or delivery system, or new implementation

Output: final system, including all kind of documentation

Maintenance and extension

Goals:

- Support the use of the KBS
- Fix errors and missing elements that may be detected
- Monitor the use of the KBS, collect suggestions, critiques, needs, to keep the KBS answering the user needs that may change with time

Output: revisions, refinements, extensions